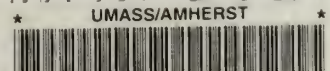


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Chapter 188



November 1992

MASSACHUSETTS  
EDUCATIONAL ASSESSMENT PROGRAM

DEC 15 1992

University of Massachusetts  
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# The Massachusetts Educational Assessment Program



## Description of Proficiency Levels

Massachusetts Department of Education

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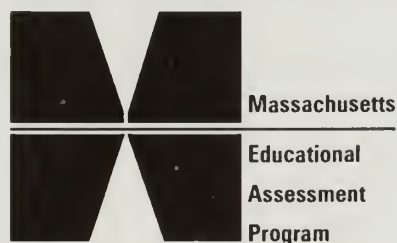
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Teresa Fitzgibbon



# The Massachusetts Educational Assessment Program



## Description of Proficiency Levels

by Elizabeth Badger

Massachusetts Department of Education

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## ***Foreword***

**E**ducation is one of the most precious heritages that we can leave our children. It allows them to function effectively in a complex world that demands the ability to think critically, creatively and flexibly. It gives them the power to solve problems in the workplace and in their personal lives. It introduces them to the challenges and pleasures of intellectual discovery.

As educators, we assume the responsibility for providing this heritage for all students. In a world of ever-changing demands and challenges, creative responses are called for. We also need a constant monitoring of progress so that we can respond to situations in an effective and timely manner. We must be aware, not only of how well students are performing, but of the factors that enhance or impede their growth in learning.

This report is intended to support educators by detailing the current achievement of students throughout the state and by providing information about the context in which education is carried out. The information contained is specific and explicit. It is meant for discussion and deliberation as it presents issues of concern to the educational community. We hope that its contents will be the occasion for discussion, self-reflection, and, ultimately, action among those who care.

*Robert V. Antonucci*

**Robert V. Antonucci,  
Commissioner of Education**

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## **Math**

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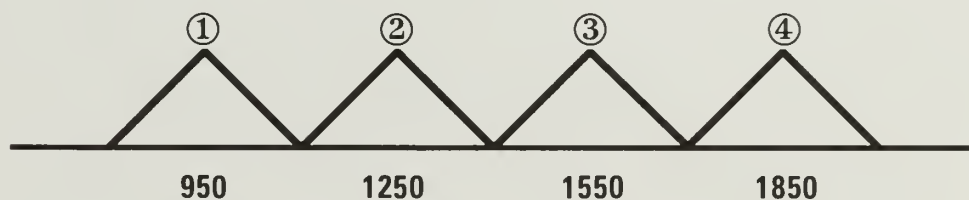
# *Description of the Proficiency Levels*

## **Introduction**

**T**he proficiency levels that are described on the following pages reflect the judgment of educators throughout the state. Our five curriculum advisory committees, composed of teachers and curriculum coordinators from a representative sample of schools, met during 1991 to develop a set of open-ended questions that would reflect the assessment frameworks. These questions, as well as the larger set of multiple-choice questions, were administered to all students at grade levels four, eight, and twelve as part of the Massachusetts Educational Assessment Program. A matrix-sampling design was used, with each student completing only part of the much larger pool of questions. Responses to the open-ended questions were rated by the contractor and by approximately 700 Massachusetts teachers. Next, a larger group of teachers and curriculum coordinators met to review the open-ended questions and characterize each of the ratings in terms of the level of proficiency that it represented. These levels were then statistically related to a corresponding interval on the multiple-choice scale. (See diagram below.)

### **Procedure for Determining Proficiency Levels**

- Multiple choice were scored and scaled 950–1850
- Open-ended were judged for proficiency levels 1–4
- Proficiency levels 1-4 were mapped to multiple choice scale



Although the examples consist of open-ended responses, the proficiency level descriptions that are included in this report are based on the results of both the multiple-choice and the open-ended questions. Each type of question has contributed different, but complementary, information to the descriptions of performance. For

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example, multiple-choice questions, which require students to select the correct or most appropriate option from a set of possibilities, call upon students' ability to recognize information, to read critically, to make inferences, and to analyze written material. Open-ended questions, in which students must determine the requirements of the task and generate their own response, require more active use of knowledge. Students must recall relevant prior knowledge, evaluate it, make generalizations when appropriate, and structure their arguments. Taken together, the information provided by these two types of tests provides a much richer description of student's capabilities than could be gathered from one or the other.

The responses of students whose performance falls below Proficiency Level 1 are not described in this report because these students were unable or unwilling to answer the open-ended questions. However, this does not imply that they are incapable of answering any questions. Typically, these students can identify the correct option of 2-5 multiple-choice questions which require recognition of common factual knowledge; however, they appear to lack the cognitive or language capabilities to respond in a less structured context.

The descriptions that follow are based on a consensus about the kinds of thinking that students should be able to engage in. By providing these descriptions and examples we hope to set the context for a discussion that does not limit itself to what students cannot do, but reaches beyond this to an examination of our expectations for all students and the standards to which we hold educators accountable.

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# GRADE 4

## Reading

In this poem Claudia Lewis tells about something that happened long ago in a classroom. Read to see what the speaker saw.

### Not In A Hundred Years

In fourth grade  
one boy,  
Milton,  
couldn't read.

Gawky,  
tall, and thin,  
when it was his turn  
he would stand,  
fumble with a word or two,  
then sit down again.

Hopeless!

But one day  
a few words came.  
then a few more.  
Our teacher stood,  
moved near,  
"Yes, yes, that's right!  
You can read it,  
Milton!"

He went on, stumbling,  
but words came.  
"Of course! Of course!  
Keep going, Milton!  
I knew you could –"

And now the next word,  
starts with 'm' just like your  
name –  
"Yes – yes –  
Go on!  
Good!"

Every one of us  
sat listening,  
watching,  
as Miss Baldwin  
pushed words  
out of Milton,  
prompting,  
urging.

She waved her arms,  
her voice rose  
and rose.  
And I suddenly sat  
glued to my desk,  
amazed, seeing what I never  
dreamed  
to see, in a hundred years,  
great tears  
in my teacher's eyes.

**Claudia Lewis**

Suppose Miss Baldwin is your teacher. A new student in school asks you, "What is Miss Baldwin like?" Write what you would tell the new student about Miss Baldwin. Use what happened in the poem to help you describe her.

## Below Level 1

9%

## Level 1

32%

Students at this level are beginning to master the basic facts and procedures of the elementary school curriculum.

"In this poem Claudia Lewis tells about something that happened long ago in a classroom. The speaker saw tears in her teachers eyes."

In answering open-ended questions, students at this level are able to identify the setting of a story and the major story events; and locate specific information contained within the text. However, they tend to identify details and repeat information from the passage rather than generate their own response.

## Level 2

36%

Students at Level 2 are adept at using basic skills and concepts when presented

"Miss Baldwin is nice she says nice things about the kids. She likes the childrens poems alot. Miss Baldwin is nice to the kids. She's not always mean but mean a little. She says alot of words to the children. She's nice to the new kids that come into the class. She is Beautiful almost every day."

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in familiar contexts. Their answers have minimal content, lacking elaboration and examples.

## Level 3

20%

Students at this proficiency level have mastered the taught curriculum. They are keen observers, think clearly and are beginning to recognize abstractions. They communicate adequately, with some minor misconceptions.

Students at this level are beginning to use reasoning skills but often their reasoning is flawed or incomplete. They are able to take a position, although they offer no explanations; or they may give generalized explanations, rather than using specific textual evidence.

**"She is nice, I would say to the new child. When you do something right she praises you. Sometimes even if you are not doing it right she urges you on anyways. When you do something right after ten or twenty tries, she gets very excited and happy. That is what I would say to the new student."**

Students at this level are better able to deal with longer narrative passages of more complex style and subject matter than those at the lower levels. Their greater competence in reading allows them to remember details and to provide inferential evidence that is dependent upon a literal interpretation of the text.

These students are able to draw conclusions with relevant support from the story. They can recognize the main idea of the passage and go beyond the literal interpretation of the text. Specifically, they can infer character traits and provide supporting evidence. Although these students can answer the questions adequately, their responses are not elaborate.

## Level 4

3%

Students at Level 4 combine strong critical thinking skills with significant prior knowledge to generate logical, well-supported answers. They communicate effectively and creatively, with clarity and appropriate detail.

**"I would tell the new student that she is very encouraging because she says words like 'Yes, yes, that's right! You can read it, Milton!' whenever Milton fumbles when he is trying to read aloud in front of the whole class. Miss Baldwin really cared about Milton's education because she would not let him give up even when he kept on stumbling as he continued to read. She kept giving clues to help him with his reading. She would say 'and now the next word starts with "M" just like your name' and he would get it right. She never ever yelled at him for making mistakes, but kept on urging him to read by praising him and saying 'yes-yes' Go on! Good!' and little by little Milton kept on reading the words right. She was so happy when he read the words right that she cried. Miss Baldwin is caring, kind and encouraging. That's what I would tell a new student about Miss Baldwin."**

These students appear to have achieved a level of skill that allows them to consider passages as a totality, rather than as a sequence of separate parts. They are able to recognize the author behind the text, showing an understanding of literary devices and voice. They also understand the author's intent and can link important ideas.

They generate full, well-developed arguments and explanations and justify their position with appropriate supporting evidence from the passage. They use information to hypothesize and generalize. Their inferences are creative as well as appropriate and clear, and their responses are elaborate and coherent.

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# GRADE 8

## Reading

In the 19th century, factories to make cloth were built in Lowell, Lawrence and the surrounding areas. These factories, called textile mills, employed young women to run the weaving looms. These women also prepared the wool and cotton by stiffening it with a paste called "size."

At first, their living and working conditions were reasonable, but soon the women were badly used. As a result, they began to organize themselves in order to improve their lives. Some of them attempted to use the power of the press to call attention to their situation.

Below is part of a letter that a factory girl wrote to the editor of the Daily Evening Voice. Read it and answer the question that follows.

### Letter from a Factory Girl

To the Editor of the Daily Evening Post:

Lowell, July 2, 1866

A victory on the side of Labor has occurred here, which I fear has not come under the notice of "Observer."

I will try and give you the account, hoping you will publish it for the encouragement of others who labor under the supervision of soulless men. It happened in the "dressing room"\* of the Merrimack Corporation.

All who are acquainted with the mills know that the dressing room is at best an uncomfortable place to work. In the room mentioned there are fans communicating with the air outside, and when running they add much to the comfort of the dressers. But it required a little more water to run the fans, so the agent determined they should be stopped. Not satisfied with this, he also ordered that the girls should put up their own size.\* This would enable him to discharge from two to four men.

But the girls, determined not to submit, called a meeting and voted unanimously not to start their frames till the size was put up for them and the fans set in motion.

\*(The "dressing room" is where yarn is treated with a starch paste called "size".)

Imagine yourself as the factory girl and complete the letter explaining how the crisis in the dressing room of the Merrimack Corporation was resolved. Please base your "ending" on evidence from the unfinished letter.

## Below Level 1

13%

## Level 1

30%

Students at this level have mastered most of the basic facts and procedures of the curriculum; however, their understanding is limited to the specific context in which the material is learned.

**"And if not the factory girls will quit. So will you publish this for the over-worked factory girls."**

These students experience difficulty when asked to structure their own responses to open-ended questions. Typically, they do not recognize the more analytic requirements of such tasks and respond with a literal approach, referring directly to factual details without reference to context.

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## Level 2

26%

Students at this level are familiar with much of the knowledge and skills that are typical of the curriculum, but find difficulty in applying that knowledge. Although generally correct, they tend to give minimal responses, lacking support or adequate explanation.

**"Thanks to our determination we have their frames set up for us and the fans are now running so it is more comfortable but we are glad that we won this battle. Although we do not know why they gave up so soon we are just glad that we won."**

Although student responses at this level tend to be reasonable and often valid, they lack definition and structure. For example, these students may be capable of identifying the general tone or theme of a passage, but they experience difficulty in analyzing prose or presenting a coherent argument. They perform better in dealing with the literal details in informational material than with the ambiguities of fictional pieces. When presented with poetry or fictional passages that depend upon satire or metaphors for effect, they show minimal understanding and do not go beyond the literal.

## Level 3

24%

Students at this level are able to analyze and evaluate material presented in unfamiliar contexts and to apply their learning. They reason well and communicate adequately.

**"When the agent found out about this he thought they were pulling his leg. But after a few days and he was facing alot of heat from the other factories he finally put the fans back on. I want this story to be published so all the other working women under the command of men will realize if you stop tolerating it they will give you the priveleges we deserve."**

These students go beyond the literal facts presented in the passages to construct meaning from the text. Using the written material as a scaffold, they can apply reasoning and prior knowledge to draw inferences. Their responses could be characterized as reasonable and coherent. Their approach is orderly; however, it lacks the level of analysis or detail to make it convincing.

## Level 4

7%

Students at this level are distinguished by their ability to analyze material and reason from it. Their responses show well-developed and creative arguments, with use of supportable evidence and terminology to clarify their ideas.

**"The agent of course, brought this to the notice of the manager, who decided to discharge those concerned. However, to his considerable surprise he found there were too many to discharge at once, for it would be harmful both to the factory, which is short of workers, and, of course for his reputation. So, he decided to raise their wages somewhat if they would go with the agent's conditions. At that moment, however, a girl stepped forward, 'Sir, we have met here to secure our rights, not for my sordid purpose of gain. We want better working conditions, not money.' Then she turned and walked out of the room. One by one, the others followed. The next day the manger issued a proclamation that the fans would be set in motion, and the size put up. Thus Labor triumphed. May it continue to do so everywhere!"**

Students at this level display a sophisticated understanding of the craft of writing. They are familiar with stylistic devices, poetic forms, irony and metaphor, and the characteristics of different genre. Their vocabulary is extensive, displaying an ability to differentiate between nuances in the meaning of words. They effectively organize material and generalize from specific textual examples.

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# GRADE 12

## Reading

In his novel *Hard Times*, Charles Dickens criticizes the educational system that developed in England during the Industrial Revolution. Read the opening chapters of the novel for an introduction to the industrialist Thomas Gradgrind and the educational system he has established for the children of his workers.

Explain why you think Charles Dickens chose the title “Murdering the Innocents” for Chapter Two.

### Below Level 1

15%

### Level 1

29%

Students at this level perform best in personal and practical contexts. They have acquired some academic skills that are useful in everyday life, but experience difficulty in recognizing the requirements of unfamiliar tasks.

**“I think Charles Dickens chose the title *Murdering the Innocents* because of the name ‘Sissy’ that Sissy Jupe’s father named her.”**

Students at this level experience difficulty when asked to construct their own responses. Although they can identify literal information within a passage, they cannot use that information to generalize or to make inferences. When asked to summarize a short passage, they had difficulty in recognizing and evaluating the major points. This difficulty in evaluation of text (as distinct from recognizing factual content) is apparent in their inability to recognize bias or author’s point of view.

### Level 2

27%

Students at this level are familiar with the major topics of the curriculum, but have limited understanding of the underlying concepts. Their responses are characterized by misconceptions or a lack of detailed information and analysis.

**“Charles Dickens uses the term ‘*Murdering the Innocents*’ as the title to chapter two to describe the way Thomas Gradgrind treats the children of his class. Mr. Gradgrind asked Sissy to define a horse. In doing so, he gave her no time to react. When she didn’t react to the question Mr. Gradgrind yelled at her and referred to her as ‘Girl number twenty.’ She hadn’t done anything wrong and she was scolded and reduced to number again.”**

When asked to create their own responses, these students can locate information which is stated explicitly in passages, list details, and summarize key ideas, often depending on key words or phrases which were provided for them in the prompt. However, although they can generally recognize the main ideas of a passage and make low level inferences, they operate primarily on a literal level. Their answers tend to be minimal, lacking organization and supporting detail.

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## Level 3

19%

Students at this level have mastered the secondary school curriculum. They can integrate and apply a broad base of academic knowledge and can communicate their reasoning competently.

**"I feel that Charles Dickens chooses the title 'Murdering The Innocents' for chapter two because of his feelings on children. He doesn't show them any compassion or caring. He just gives them their lessons in a cold harsh way. he doesn't treat them like people. By treating the kids like this he is killing the innocent, child-like nature in them. If kids don't have fun they lose their childhood which is like murdering them."**

Students at this level comprehend a wide variety of material, including passages that contain complex ideas and detailed technical descriptions. In addition, they can relate information abstracted from the text itself, from other reading, and from their own experience in their construction of meaning.

They recognize implied meanings and universal themes and can draw reasonable inferences regarding similarities and differences, cause and effect, etc. They are knowledgeable of genre, can recognize point of view, and can employ strategic reading. Their responses reflect their ability to analyze and evaluate.

## Level 4

10%

Students at this level bring a broad and detailed base of knowledge and understanding to the solution of problems. They are able to organize information, analyze it, and generalize from it to solve problems and construct new meaning. They are creative, independent thinkers who reason and communicate with power.

**"'Murdering the Innocents' is an appropriate title for Chapter 2 for Charles Dickens is illustrating the 'mental murder' endemic to the English educational system during the Industrial Revolution. Dickens portrays Thomas Gradgrind as a square man (there are numerous references to a square throughout the text). In essence, Gradgrind is sharp and harsh; he has no smooth edges and is equally brutal on all sides (as is a square a perfect equilateral). Also, Gradgrind's mere name suggests the animosity with which Dickens addresses the English educational system. 'Grad' refers to the students and 'grind' is their fate as if thrown to a meat grinder.**

**In short, Dickens was appalled at education in his times and thus was compelled to entitle his work *Hard Times*."**

At this level, students are able to deal with the reading passages as a totality, reflecting on the author's purpose and the techniques used to achieve that purpose. In other words, they are able to distance themselves from the meaning of the text itself to take into account the actual craft of writing. For example, they can identify and use stylistic techniques; they understand figurative language, irony and satire.

These students apply higher level critical thinking skills to interpret and evaluate what they are reading. They synthesize and integrate information, recognize parallel situations, and take and represent different points of view effectively. Their written responses are marked by an elaboration of thought, in addition to a logical soundness. Furthermore, the creativity in their approach is evident in their unique (and thoughtful) responses.

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The Voyager I and Voyager II spacecraft have been put into space to gather information about other planets where humans may be able to live. Write about important things that a planet must have for people to live on it. Discuss at least three things and explain why each is necessary.

## **Below Level 1**

**5%**

## **Level 1**

**41%**

Students at this level are beginning to master the basic facts and procedures of the elementary school curriculum.

**"They should have a big bubble around it because then the people would be able to breathe.**

**They should have people go up there to make houses and cars like we do. I hope they make some of the things I listed. I think they are good reasons.**

**I think they could have a post office, a library, a railroad station, and definitely a school, and a movie house and houses, bridges and apartment.**

**And they can have states, towns, just like we do so it will be like us and them."**

In answering open-ended questions, students display a grasp of general factual knowledge but do not recognize the requirements of specific tasks. They can make simple observations, but their answers often appear incomplete because of poor reasoning skills, lack of examples, an inability to interpret data, and a tendency to restate the facts.

## **Level 2**

**34%**

Students at this level can apply basic skills and concepts when presented in familiar contexts. Their answers have minimal content, lacking elaboration and examples.

**"Gravity – It's necessary for someone to stay on the ground.**

**Living Quarters – People have to have a place to live.**

**Crates of Food – They need food to survive."**

In answering open-ended questions, students display fact-based knowledge strengthened by some comprehension and understanding. They are accurate observers but tend to describe rather than interpret data. They make direct associations with ease but falter at predicting long-range outcomes. When asked to construct an experiment, these students do not appear to recognize the need for controls and multiple trials.

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## Level 3

18%

Students at this level have mastered the taught curriculum. They observe keenly, think clearly and begin to recognize abstractions. They communicate adequately, with some minor errors.

**"Gravity air and water are all needed.**

**This is because if we didn't have gravity on our planet we would be floating all over the sky, everything else like trees, grass and flowers also. Gravity pulls us and everything else to the core of the earth, this is why we stay put on the ground.**

**We need air to keep us from getting suffocated.**

**Water, every critter on earth needs water to live. If we didn't have water we would dehydrate and then die.**

**I am glad earth is a living planet."**

Students at Level 3 are beginning to make connections between the abstract and the concrete and can successfully incorporate prior knowledge with new concepts. Although they can display data appropriately, their ability to generalize remains weak. For example, when given a set of data about the kinds of fruit fourth graders prefer, students arrive at very specific rather than general conclusions. Although their answers are adequate, showing some reasoning and accurate conclusions, these students remain within the confines of the question and do not elaborate a great deal.

## Level 4

2%

Students at this level combine strong critical thinking skills with significant prior knowledge to generate logical, well-supported answers. They communicate clearly, effectively and creatively using appropriate detail.

**"For people to live on a planet, the planet must have oxygen for people to breathe. If we cannot breathe for too long, our heart will stop pumping blood.**

**A planet which people live on must have sunlight. Sunlight helps the vegetables which we need to eat. Sunlight also helps our body produce vitamins.**

**Finally, a planet must have water for living things to survive. We must have water because it has vitamins in it. Plants need water to make food and we eat plants. Those are three elements that a planet must have for people to live on."**

These students are able to link facts, concepts and observations to arrive at accurate conclusions. Additionally, they are able to represent data in many ways. Students use prior knowledge at all levels, but the most proficient students use appropriate knowledge to demonstrate an abstraction. Students at this level are able to transfer skills from one discipline to another. Their answers demonstrate depth of understanding as well as elaboration.

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Wilma has heard that wolves and their relatives (dogs) howl more at night when the moon is full. Describe in detail an investigation you could do to decide if this is true.

## **Below Level 1**

**7%**

## **Level 1**

**38%**

Students at this level have mastered most of the basic facts and procedures of the curriculum; however, their understanding is limited to the specific context in which the material is learned.

**"To decide if it is true whether wolves and dogs howl more at night you could take two dogs, of the same breed, sex and age, and put them in an artificial backyard set up for this experiment.**

**The backyard should have a doghouse, food, grass and anything else needed to form a natural habitat. Put the dog in the backyard and tape his howls. (One of the dogs should be tested at night and the other during the day.)**

**The same test may be conducted with the wolf, but the backyard may be replaced with the wolves natural habitat."**

When presented with open-ended questions requiring experimental design, these students don't recognize which variables need to be controlled, nor can they develop valid scientific procedures. Although they appear to be familiar with popular scientific topics, such as the environment, they cannot relate their general knowledge to specific issues, and experience difficulty in interpreting the requirements of the tasks.

## **Level 2**

**24%**

Students at this level possess much of the knowledge and skills typical of the curriculum, but have difficulty applying that knowledge. Although generally correct, their responses are minimal, lacking support or adequate explanation, or are marred by major misconceptions.

**"First of all, I would turn the investigation into a five step process. Step 1 - round up a large group of dogs and wolves. About ten dogs and ten wolves. Step 2 - Get a calendar and mark down all of the days that you'll be able to see a full moon. Step 3 - Put each animal in an area that is familiar to them. Away from people and away from other dogs and wolves. Step 4 - record the number of dogs that howled and subtract that by ten. Do the same for the wolves. Step 5 - make an average for the dogs and make an average for the wolves. Then, put the two averages together and make one big average. Then you will come to your conclusion."**

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When presented with an experimental situation, these students are unable to create a workable design. Nor can they apply the scientific processes that they identify in multiple-choice questions. When given a set of data, they arrive at an immediate conclusion and use it to justify their responses, rather than organizing the data in order to reach a conclusion. Although they recognize some general principles, their analyses tend to be vague and their responses minimal, with little or no explanation, or are marred by major misconceptions.

## Level 3

27%

Students at this level recognize the underlying concepts of the curriculum and can apply their learning to new contexts. They reason well and communicate adequately.

**"To investigate if wolves and their relatives howl more at night when the moon is full, you could easily video tape the wolves. First, you set up a video camera where wolves howl at night. Do this on a night when the moon is full. Compare tapes. You should have your answer."**

At this level students construct competent responses. They are knowledgeable about experimental procedure and can produce a satisfactory experimental design. They can organize raw data to reveal relationships but cannot draw inferences. Their generally adequate responses are characterized by a limited scientific vocabulary and a lack of elaboration and detail.

## Level 4

4%

Students at this level are distinguished by their ability to analyze material and reason from it. Their well-developed, creative responses contain supportable evidence and appropriate terminology which clarify their ideas.

**"Camp out in a forest inhabited by wolves for seven full days and nights in four different seasons (winter, spring, fall and summer), keep track of how many howls you hear at night and during the day. The moon should be full in the fourth night so you can see if it is the full moon causing the wolves to howl."**

In their responses to open-ended questions, these students display an understanding of a wide range of scientific concepts, such as the law of conservation of energy, the relationship between volume and the transfer of heat, and the effects of molecular movement. They can organize data and clearly illustrate the relationships among variables. When presented with an experimental situation, they can create a well-conceived design. Their explanations articulate well-developed reasoning, with use of supportable evidence and terminology to clarify their ideas.

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The same side of the moon faces the earth at all times. What would happen if the earth orbited the sun in the same way?

## **Below Level 1**

**10%**

## **Level 1**

**38%**

Students at this level perform best in a personal context. They have acquired some practical academic skills that are useful in everyday life, but experience difficulty in recognizing the requirements of unfamiliar tasks.

**"If the earth moved around the moon like the moon moves around the earth, for one thing one side of the earth would see the moon and the other side would not. The side that sees the moon would have occurrences of eclipses of the moon and sun. One side of the earth would be in total darkness at night. The calendar would change, seasons, also."**

Careless observation characterizes many of the written responses of students at this level. They tend to misuse terminology in lieu of explanations. Because they have difficulty organizing and interpreting data, students at Level 1 will arrive at intuitive rather than reasoned conclusions. Their ability to communicate scientifically is minimal.

## **Level 2**

**21%**

Students at this level are familiar with the major curriculum topics, but have limited understanding of the underlying concepts. Misconceptions or lack of detailed information and analysis characterize their responses.

**"If the earth revolved around the sun the way the moon revolves around the earth, half the earth would be dark for half of the year. So days would be half a year long and get very hot and nights would be half a year long and get very cold because the sun wouldn't be warming the land. This would cause problems with the crops."**

While the breadth of their factual scientific knowledge is greater than that of students at the previous level, students at this level still experience difficulty communicating or applying concepts. They tend to rearrange rather than reduce data. Although they demonstrate some facility with scientific terminology, they prefer to communicate in vague, non-scientific terms. In response to multi-part questions, or questions that require some depth, students at this level generally provide one answer with minimal support.

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## Level 3

25%

Students at this level have mastered the secondary school curriculum. They can integrate and apply a broad base of academic knowledge, and can communicate their reasoning competently.

**"If the earth moved around the sun the same way the moon went around the earth, one side of the earth would always be light and mostly warm. Then that would mean that the other side of the world would be dark all year. There would also be a problem of growing things on the dark side of the world if the plants and trees don't have sunlight."**

When constructing their own response, students at this level are capable of explaining specific situations in terms of underlying principles. They are comfortable with scientific terminology. They understand the scientific method and can apply it successfully, although not necessarily with statistical accuracy. Because they have problems seeing relationships, they can select and organize data but cannot make good inferences from it. Students at this level can address multi-part and multilevel questions with minor errors and incomplete documentation.

## Level 4

6%

Students at this level solve problems using a broad and detailed base of knowledge and understanding. They can organize information, analyze it, and generalize to construct new meaning. They are creative, independent thinkers who reason and communicate with power.

**"Night and day would no longer exist in all parts of the world. Instead, one side of the earth would have a constant night and the other, opposite side would constantly be in daylight. For starters, the temperatures of each opposing side would differ greatly—one side (daylight) would be unbearably hot and the other dangerously cold. This would have an effect on all living organisms—how they adapted, survived and grew—on either side. It would also greatly affect the weather with snow as opposed to rain, flooding as opposed to blizzards, etc. and it would also affect the terrain of the earth (possible creations of jungles and deserts on the light hot side, creations of ice lands and tundras on the cold side). With all of these changes in mind, the two opposing sides of earth would be 'as different as night and day.'"**

The written responses of students at this level reveal a well-developed understanding of scientific concepts across disciplines. They recognize relationships among ideas and can identify subtle but important factors that affect outcomes. They are able to apply scientific methods to specific situations, and understand the need for statistical accuracy. By analyzing data to make reasonable inferences, they reach accurate conclusions. They communicate effectively by using scientific terminology. They provide in-depth and complete answers to complex questions.

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Use the information in the chart below to answer each part of this question.

| REGION   | TYPE OF LAND | AVERAGE HIGH AND LOW TEMPERATURES DURING YEAR | YEARLY RAINFALL (inches) |
|----------|--------------|-----------------------------------------------|--------------------------|
| Region 1 | desert       | 20° – 110°F                                   | under 10                 |
| Region 2 | plains       | 30° – 95°F                                    | 20 – 40                  |
| Region 3 | mountains    | - 20° – 65°F                                  | 10 – 15                  |
| Region 4 | coastal      | 70° – 90°F                                    | over 80                  |

- A. Which Region is probably best for farming? Use information from the table to explain why you think so.
- B. Which Region is best to visit for a vacation? Use information from the table to explain why you think so.

## **Below Level 1**

**7%**

## **Level 1**

**37%**

Students at this level are beginning to master the basic facts and procedures of the elementary school curriculum.

"A. Region 1 because it's 20 degrees to 110 degrees and it would be hot and cool. You need sun and rain sometime you need fertilizers. If you pick region 2 your going to drowned the farm. It will get enough rain and water for the farm.

B. I think it should be Region 3. The mountains because you can climb can see goats on top of the mountain up so high maybe even see an avalanche. But watch out, it may fall on you. Blop! Yes, the mountains, that's where I'd go on vacation."

Students at this level have some basic information concerning the world about them, but it is not related into a coherent structure. As a result, their responses tend to be superficial or irrelevant to the requirements of the task. Poor reading or writing skills may also affect their ability to answer adequately.

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## Level 2

**37%**

Students at this level can apply basic skills and concepts when presented in familiar contexts. Their answers have minimal content, lacking elaboration or detail.

**"Plains because they are flat and good temperature with the sun it would be easy for the farmer to rake, hoe and wheel barrel on flat land. It would be hard to do it on mountains. The reason why I didn't say desert or coastal is because in the desert there's not a lot of water the plants could dry out. And the coastal isn't a good one because they will always be wet too much water can make a plant go flat."**

The open-ended responses of students at Level 2 generally remain personal and concrete. They can select appropriate details and use them as evidence. They recognize the effects of change but cannot determine the causes. They have some map reading skills and can identify attributes of different sites. In response to multi-part questions, students at Level 2 seldom are able to answer all parts successfully.

## Level 3

**17%**

Students at this level have mastered the taught curriculum. They observe keenly, think clearly and begin to recognize abstractions. They communicate adequately, with some minor errors.

**"A. Region 2 is probably best for farming because the plains have a good temperature and enough rainfall for the crops to grow."**

**B. Region 4 is probably best for a vacation because the coastal region has an enjoyable temperature and most people like to swim there."**

In their written responses, Level 3 students exhibit an objective point of view. They comprehend human geography and have a sense of chronology. They understand the causes of change. They can interpret data and draw simple inferences. Not only do they select and evaluate evidence, but they use it to support positions. Their answers are adequate but lack elaboration and examples that would enrich their responses and indicate strong reasoning skills.

## Level 4

**2%**

Students at this level combine strong critical thinking skills with significant prior knowledge to generate logical, well-supported answers. They communicate clearly, effectively and creatively using appropriate detail.

**"A. Region 2 is probably best for farming because the temperature is always right for farming. They also get just the right amount of rainfall. For if the amount was too small, the plants would die of no water. Also, if the amount was too high, the plants would drown."**

**B. Region 4 is probably best for a vacation because the water is close by to swim and have fun. It's also warm on the coastal plain. Good weather means having a good time. As a matter of fact, there is only one thing that could go wrong. The one thing that could go wrong is rain."**

When answering open-ended questions, students at Level 4 go beyond the requirements of the question by synthesizing diverse information and making meaningful generalizations. They can organize and interpret data to make comparisons, draw inferences, and arrive at conclusions. They knowledgeably discuss current events. Their elaborated answers are well-supported and display depth of thought.

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Alleged “witches” were severely punished in colonial times.

Thomas Jefferson owned slaves.

The U.S. government took control of lands occupied by Native Americans.

When we study history, we often read about events or situations that seem unjust to us. We wonder how they could have occurred and whether the people in those times believed that they were acting unjustly. Choose one of the events or situations listed in the box above. Write what you know about it. Explain the difference between how we think of the event today and how people thought of it at the time.

## **Below Level 1**

**8%**

## **Level 1**

**39%**

Students at Level 1 have mastered most of the basic facts and procedures of the curriculum; however, their understanding is limited to the specific context in which the material is learned.

**“The U.S. government took control of lands occupied by Native Americans.**

**I think it was unfair. The U.S. government wouldn’t like it if someone took over the U.S.”**

Students at this level have some basic information concerning history and citizenship. When asked to construct their own responses, they experience difficulty in comprehending the causes and effects of historical movements and in applying their factual knowledge in unfamiliar contexts. Their knowledge appears to remain at the “taught” level and their decisions are based on personal experience.

## **Level 2**

**26%**

Students at Level 2 possess much of the knowledge and skills typical of the curriculum, but have difficulty applying that knowledge. Although generally correct, their responses are minimal, lacking support or adequate explanation, or are marred by major misconceptions.

**“Thomas Jefferson owned slaves because of the fact that it was usual then. He grew up knowing slavery and was used to it. Back then, slavery was big business and they did not require paychecks. Today, we know that all men are equal and should not be treated in such ways. Slavery is unconstitutional and is evil. There is no excuse for slavery whatsoever.”**

Students at Level 2 can make simple inferences from material that is presented to them; however, they experience difficulty in marshaling ideas and information to construct their own arguments. They also find it hard to shift viewpoints. As a result, their written responses tend to fall back on moral absolutes as reasons and are typically characterized by their brevity.

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## Level 3

22%

Students at this level recognize the underlying concepts of the curriculum and can apply their learning to new contexts. They reason well and communicate adequately.

**"Alleged 'witches' were severely punished in colonial times. The most famous of which is probably the Salem Witch trials of Salem, Massachusetts.**

**People back then were afraid of what they didn't know or understand. If something came up that seemed unusual, they would accuse the person of being a witch.**

**Today we look at that as cruel and unusual punishment. We know the people back then acted wrongly. Today we know no such thing as witchcraft."**

Students at Level 3 are fluent readers who can interpret material presented in unfamiliar formats. When asked to construct their own responses, they structure arguments and recognize contrasting perspectives when the material is familiar to them (e.g., environmental issues). They are willing to explore divergent points of view. In response to less familiar topics, their lack of detailed knowledge limits the effectiveness of their arguments.

## Level 4

5%

Students at this level are distinguished by their ability to analyze material and reason from it. Their well-developed, creative responses contain supportable evidence and appropriate terminology which clarify their ideas.

**"Witches in colonial times were women and a few men that were thought to have secret powers. Most people did not like the supposed witches and tried to get them killed or punished. They were accused of going into people's minds and making them see certain visions or say or do certain things.**

**A lot of people now realize that the witches were used as a form of scapegoating. If someone did not like a person, they could say that they had seen visions of the person that they didn't like. Most likely judges would put witches in jail or hang them because they were so afraid. However, we still have fears and prejudices against other people and their cultures such as the fear of communism in the 50's which started the McCarthy trials and ruined hundreds of innocent lives."**

The most typical characteristic of Level 4 students is the ability to generalize from the given facts. For example, when discussing a political cartoon, they relate the cartoonist's message to larger social and ethical issues. As above, they cogently describe how the same event can be judged differently when examined from a historical perspective. Asked to review a current political situation, they cite positive and negative arguments and arrive at reasoned conclusions. They are thoughtful readers, attentive to details and subtleties.

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# GRADE 12

## Social Studies

| Country | Gross National Product (per person) | Infant Mortality | Life Expectancy |        | Murder | # of Students per 100,000 Inhabitants | Circulation of Newspapers per 1000 | TV sets per 1000 |
|---------|-------------------------------------|------------------|-----------------|--------|--------|---------------------------------------|------------------------------------|------------------|
|         |                                     |                  | Male            | Female |        |                                       |                                    |                  |
| A       | \$23,325.00                         | 5                | 75              | 81     | 1.20   | 1,971                                 | 562                                | 585              |
| B       | \$19,815.00                         | 10               | 72              | 79     | 8.60   | 5,142                                 | 268                                | 813              |
| C       | \$5,311.00                          | 70               | 62              | 65     | 1      | 1,091                                 | 59                                 | 83               |

Based on the information in the table and your knowledge of different countries in the world, what real countries might Country A, Country B, and Country C be? Defend your choices using the information in the table. Your answer will be judged on your reasoning and how well you use all the data in the table.

### Below Level 1

9%

### Level 1

41%

Students at this level perform best in a personal context. They have acquired some practical academic skills that are useful in everyday life, but experience difficulty in recognizing the requirements of unfamiliar tasks.

"Country B would sound the most reality to me. A country with the Gross National Product of 19815.00 would most likely have life expectancy 72-79. Because I find if a country is that crowded you wouldn't be expected to live long. This must be a small country."

Students at Level 1 have accumulated a store of discrete facts about the history and structure of society. When presented with the open-ended format, they show little or no understanding of important concepts and are unable to connect ideas or apply them.

### Level 2

21%

Students at this level are familiar with the major curriculum topics, but have limited understanding of the underlying concepts. Misconceptions or lack of detailed information and analysis characterize their responses.

"I think A would probably be Russia because there are so many jobs over there in factories, corporations, partnerships that make it Europe's largest money making country.

B would have to be the United States because of the murder rate being so high and life expectancy is big.

C would be somewhere in Africa because of the infant mortality rate being so high."

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Students at Level 2 have a minimal understanding of important concepts. This is evident in their responses to open-ended questions. Typically, they give a scant or incomplete response that is characterized by lack of evidence or inappropriate evidence.

## Level 3

25%

Students at this level have mastered the secondary school curriculum. They can integrate and apply a broad base of academic knowledge and can communicate their reasoning competently.

**"Country A or B, would be a country such as the U. S. or Japan where there is a high Gross National Product rate. The infant mortality is low and life expectancy is high due to good hospitals and new technology. Country C would be a country like U.S.S.R. where people don't spend as much time at home, murder is low, income is low because everything is controlled by the government."**

In response to the open-ended questions, Level 3 students marshal information from many sources to produce a well-developed reply. Presented with unfamiliar graphs and charts, they recognize and integrate detailed and vital information as well as interpret its meaning. They then use that information to make generalizations. Though adequate, their responses lack elaboration and enriching detail.

## Level 4

5%

Students at this level solve problems using a broad and detailed base of knowledge and understanding. They can organize information, analyze it, and generalize to construct new meaning. They are creative, independent thinkers who reason and communicate with power.

**"Country A is a nation with a fairly high standard of living, as shown by the Gross National Product. The number of televisions and newspapers indicate that the inhabitants are fairly well informed. The low infant mortality rate and long life expectancy show that the nation is healthy. The low number of murders reveal that citizens are generally law-abiding. Based on this knowledge, I would have to say that this country may be Japan."**

**Country B is also in good standing. Like Country A, it has a good standard of living. More people have TV's and less have papers but they are still informed. Due to the high number of students, it is obvious that many people continue education. The number of murders is deplorable, however. I believe that this country could be the United States.**

**Country C has a lower standard of living. The people are not as healthy. They also do not have as good a grip on current events. The low murder rate shows that they are not as given to committing crimes. I would say that this country may be the former Soviet Union."**

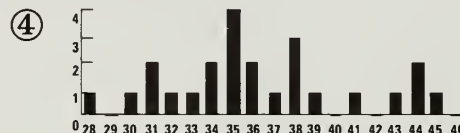
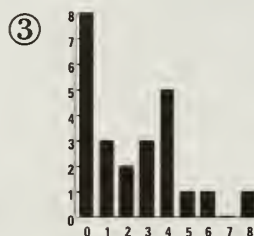
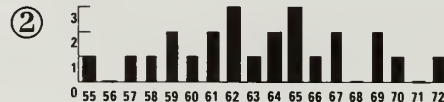
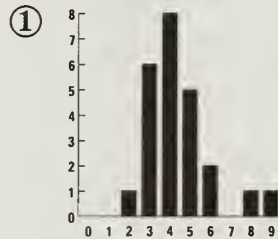
In responding to open-ended questions, Level 4 students can be characterized by their insight. Within a set of passages, they recognize large themes, see implications, integrate new information with their prior knowledge, and use that knowledge to broaden, elaborate, and enrich explanations. They discern and explicate opposing points of view and regard situations from multiple perspectives.

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# GRADE 4

# Math

Karen and her fourth grade classmates used information about themselves to make the graphs below. Look carefully at these graphs and answer the questions that follow them.



- A. Which graph shows the weight in pounds of fourth graders? Explain why you think so.
- B. Which graph shows the shoe sizes of fourth graders? Explain why you think so.
- C. Choose ONE of the other graphs and explain what you think it might describe and why. Be sure to tell which graph you are describing.

## Below Level 1

6%

## Level 1

38%

Students at this level are beginning to master the basic facts and procedures of the elementary school curriculum.

- "A. I think the graph three is the weight. Because it has a lot of height marks on it. So that's why I think its one of the weights.
- B. I think it's graph 4. Because its like the lowest numbers out of all the graphs. So that's why I think its the shoe sizes for the fourth grade.
- C. I think graph one shows how tall the people are in the class."

Level 1 students experience difficulty when asked to respond to open-ended questions. Although they may perform simple, computational problems well, they fail to apply their knowledge in less familiar contexts. When presented with problems, they show some understanding of what is required, but do not use a reasonable approach.

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## Level 2

39%

Students at this level are adept at using basic skills and concepts when presented in familiar contexts. Their answers have minimal content, lacking elaboration and examples.

**"A. Graph 2 because it looks appropriate weights for fourth graders, the rest don't.**

**B. Graph 4 because fourth graders can't be 8 feet tall.**

**C. Graph 3. I think it could be the people in the fourth grade classes."**

In response to open-ended questions students at Level 2 show evidence of some conceptual understanding; however, they have a limited ability to express themselves verbally. Although they can read charts and graphs, they cannot generate their own interpretations of the data. These students seldom go beyond a minimally acceptable response to the problem presented.

## Level 3

15%

Students at this level have mastered the taught curriculum. They observe keenly, think clearly and begin to recognize abstractions. They communicate adequately, with some minor errors.

**"A. I think that the graph that shows the pounds of 4th graders is graph 2. I think this because the numbers look like weights.**

**B. I think that the graph of the shoe sizes is graph 3 because its the only one that looks like shoe sizes and more numbers of kids.**

**C. I think graph 4 shows how tall the kids are Because it looks like heights of something so I thought it was kids heights."**

In responding to open-ended questions students at Level 3 recognize the application of mathematics to everyday situations. They can construct and use diagrams, tables and charts to solve problems. They recognize appropriate strategies; show clear understanding of mathematical concepts; and provide sound arguments in support of their answers.

## Level 4

2%

Students at this level combine strong critical thinking skills with significant prior knowledge to generate logical, well-supported answers. They communicate clearly, effectively and creatively using appropriate detail.

**"A. I think graph 2 shows how much a fourth grader weighs. The students would have to be babies if 1, 3, or 4 showed their weight. Most kids in my class weigh from 55-72.**

**B. I think that graph 1 shows the shoe size of fourth graders. Lots of 9 and 10 year olds wear shoes for 2 - 9. I wear a size 5. It couldn't be graph 3 because there is no such thing as size zero.**

**C. Graph 4 might show how old the fourth grade students' parents are. 28 years old might be a little young though to have a child in the fourth grade."**

In response to the open-ended questions Level 4 students effectively communicate mathematical concepts using mathematical language. They provide fully developed examples; construct strong, appropriate arguments; and use a variety of methods to illustrate their comprehension. Their close attention to details allows them to achieve a higher level of accuracy than the previous groups.

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# GRADE 8

# Math

Your neighbor wants to hire you to paint the walls of his living room, which measures 12' by 15'. The room has an 8' ceiling, three windows, and a door. You know that one quart of paint will cover 80 square feet.

- A. Estimate the amount of paint needed to complete this job. Explain your reasoning.
- B. You are asking for \$100 for the job. Your neighbor thinks that amount is too much. Your expenses (paint, brushes, tape, drop cloth, etc.) must be taken from this amount. Paint costs 5.95 per quart or \$21 per gallon. You think it will take you 6 hours to complete this job. Write a letter to your neighbor convincing him that \$100 is a reasonable payment for the job.

## Below Level 1

8%

## Level 1

39%

Students at this level have mastered most of the basic facts and procedures of the curriculum; however, their understanding is limited to the specific context in which the material is learned.

"A. I think the answer is two quarts, I don't know why I just guessed.

B. Dear Neighbor,

I think that \$100 dollars is a good amount of money to paint your living room. The reason I say this is because I have to buy a lot of stuff just to paint your house so I have to spend a lot of money. So 100 dollars is what I want and if you can't give it to me, then I won't paint your living room."

When presented with open-ended questions, students at this level apply a trial-and-error strategy to solving simple problems, but experience difficulty in interpreting problems presented in unfamiliar format or contexts. They fail to recognize the requirements of the task or the relevance of their mathematical knowledge.

## Level 2

32%

Students at this level possess much of the knowledge and skills typical of the curriculum, but have difficulty applying that knowledge. Their responses are minimal, lacking support or adequate explanation.

"A. You would need about  $2\frac{1}{4}$  quarts of paint to paint your neighbors living room. You would because his living room measures 12' by 15'.

B. Dear Neighbor,

I think \$100 is a reasonable payment for the job. I think you should pay me \$100 because it will take around 6 hours to complete the job and all the supplies are a lot of money also.

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**You can do what you want but I think around \$100 is a good pay. Think about it."**

When presented with open-ended questions requiring numerical reasoning, students at Level 2 are willing to attempt unfamiliar or complex problems, but they often do not recognize the relationship between the elements involved and find it difficult to express their reasoning.

## **Level 3**

**19%**

Students at this level go beyond the taught facts and procedures of the curriculum to recognize underlying concepts. They can analyze and evaluate material presented in new contexts and can apply their learning. They reason well and communicate adequately.

**"A. You would need about 6 quarts of paint to cover the space. If you have 432 square feet and divide it by 80, you get 5 r. 32, so that's how much you need.**

**B. Dear Neighbor,**

**\$100 is a very reasonable amount for my work because if it takes me 6 hours to do this job, then it will cover all my expenses nicely and you will have a beautiful wall to look at. If a professional came in, you would probably have to pay more."**

Level 3 students understand the requirements of the problems and make good attempts at solutions. When problems are straightforward, such as interpreting and synthesizing data from graphs and charts, they are able to form reasonable conclusions. However, they find it difficult to organize complex data and usually fail to consider some important variables.

## **Level 4**

**5%**

Students at this level are distinguished by their ability to analyze material and reason from it. Their well-developed, creative responses contain supportable evidence and appropriate terminology which clarify their ideas.

**"A. I have estimated that approximately five or six quarts or 1 1/2 gallons are necessary to completely paint the living room. The room measures 12' by 15'. This means two will have a length of 12' and a height of 8'. The other two walls are at a length of 15' with an 8' ceiling. There will be leftover paint because the windows and door aren't painted.**

**B. Dear Neighbor,**

**After careful considerations of my calculations, I believe that a hundred dollar wage would be very reasonable. Buying paint alone will cost me over thirty dollars plus I have other expenses. The job will take almost six hours. I ask you to reconsider your deal and allow me to complete a job well at a reasonable price."**

In addition to their numerical proficiency and geometric knowledge, these students display a well-ordered, reasoned approach to problem solving. When presented with complex word problems, they apply a variety of solution strategies, including the organization of data into charts and graphs. They understand and use appropriate symbolic representation, and can explain their reasoning with clarity and precision.

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| Job A                                                                   | Job B                                                            | Job C                                                                                                                               |
|-------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| \$1000/month<br>15% increase at six months<br>Salary review at one year | \$275/week<br>5% increase at 16 weeks<br>5% increase at 32 weeks | \$8/hour, 30–40 hrs./week<br>after 6 mon., guaranteed 35 hr./wk.<br>after 1 yr., guaranteed 40 hr./wk., with 1-1/2 for any overtime |

The chart above shows three job offers which you have received. Which job offer is the best and why?

## Below Level 1

12%

## Level 1

37%

Students at this level perform best in a personal context. They have acquired some practical academic skills that are useful in everyday life, but experience difficulty in recognizing the requirements of unfamiliar tasks.

**"Job B is the best offer because you make more a month than Job A and you don't seem to work as much as Job C."**

Students at this level often fail to recognize the relevance of mathematics to a task. Their approach is holistic and uncritical, as they apply personal reactions rather than analysis to problem situations.

## Level 2

24%

Students at this level are familiar with the major curriculum topics, but have limited understanding of the underlying concepts. Misconceptions or lack of detailed information and analysis characterize their responses.

**"Job A seems the best to me for although you do not start with as much pay as in job B you get an increased salary of approximately 37.00 a week after six months. This would allow you to make around 287.00 a week which is more than the 280.50 you would be making in 32 weeks. Also there after one year there is a review of your salary."**

When presented with open-ended questions, Level 2 students demonstrate a minimal understanding of the tasks and an incomplete understanding of the concepts involved. Although they can answer questions at a mechanical level, they are unable to apply and connect their knowledge to real world situations. When presented with a complex or multi-part problem, they fail to consider all the information or recognize its relevance. Consequently, they experience difficulty in communicating their reasoning.

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## Level 3

20%

Students at this level have mastered the secondary school curriculum. They can integrate and apply a broad base of academic knowledge and can communicate their reasoning competently.

**"When looking to find a job there are many things that should be considered. With the information provided, I can base my decision only on salary. To figure the salaries for the first year I have used the space below..."**

**Job A \$12,900 yearly salary, job B \$15,083 yearly salary; job C \$13526 minimum salary and \$15606 maximum salary.**

**If I were to make the decision on which job, I would take B; it guarantees the most amount of money for one year."**

In response to open-ended questions, students at Level 3 are able to recognize the relevant concepts in a problem and to make obvious connections within mathematics itself or with other areas. They are able to partially explain their reasoning and can adequately communicate in mathematical terms. While their problem solving may not be fully complete or explained, they do show the ability to apply mathematical skills, reason mathematically, and work in the abstract.

## Level 4

7%

Students at this level solve problems using a broad and detailed base of knowledge and understanding. They can organize information, analyze it, and generalize to construct new meaning. They are creative, independent thinkers who reason and communicate with power.

**"If the jobs offered to me, I feel that Job C is the best offer. You see, Job A would give me \$12,900 a year and even if A got another 15% pay raise at the end of the year, I still wouldn't be making what Job C pays me. Job B, on the other hand, would give me \$13,871 per year and steady pay increases, but I still would choose Job C. You see, with Job C I would be making a minimum of \$13500 per year and a maximum of \$16640 per year. Although minimum pay is slightly less than Job B, the maximum pay is a good deal more than Job B's. Also with Job C,, within a year I'd be guaranteed 40 hours a week (\$16,640 per year) plus time and a half for any overtime, thus giving me an overall higher salary than Jobs A and B within a year. Mind you, my decision was not based on the many other factors involved such as location of the job, type of work and health benefits, etc."**

Students at this level solve complex word problems that cannot easily be translated into simple algebraic equations and are not typical of those found in textbooks. They are able to extend beyond the obvious connections to the less obvious, more abstract generalizations. This self-confidence and intellectual flexibility is evident in their divergent problem solving strategies, as well as in the effectiveness and accuracy of their problem solutions.

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# GRADE 4

## Writing

Students were asked to discuss at least three things necessary for human life on another planet and explain why each is necessary.

### Below Level 1

6%

### Level 1

26%

Students at this level are beginning to master basic skills in communication.

**"Well thay should put houses when you do on earth. and it should be clean and healthy. and it should have lost of safty to go there"**

Students at this level approach writing tasks as they would a worksheet; although relevant, their responses tend to be minimal, usually limited to a single sentence. If they use more than one sentence or idea, there is no attempt to connect them in logical sequence. Ideas are expressed in vague terms with few specific details and little elaboration.

The responses of students in proficiency Level 1 exhibit a disproportionate number of errors in surface features (spelling, punctuation, capitalization and usage). These errors may be so numerous as to interfere with the reader's ability to understand the text.

### Level 2

46%

Students at this level can communicate ideas using simple structure and language.

**"Things the planet must have for people to live in it is, air so people can breath, good soil so people can have food. Water so people can drink and water the plants, and a sorce of heat (the sun) to keep people warm."**

Students at this level go beyond the simple one-sentence responses that characterize students at Level 1. Their paragraphs show rudimentary development consisting of predictable, simple sentences with unelaborated or repetitious details. There is some attempt at organization; however, traditional organizational features, such as topic sentences and conclusions, are missing. In their arguments, these students attempt to show a progression of thought, but there are lapses or shifts in logical development. Like Level 1 students, they use very simple language which is not always appropriate for the topic.

In general, students at Level 2 display more control over the mechanics than do students in Level 1. They lack skills in the areas of topic development, organization and detail.

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## Level 3

19%

Students at this level can communicate adequately using a logical organization and appropriate details.

**"If people live on planets the planets would need a lot of food and water. Planets need these things because some planets can be dangerous. The most important, you need water to survive because you can't live without water.**

**You also need warm clothing because you don't now if the planet is cold cool, warm or hot. Because can probably die if you don't wear warm clothes on a freezing cold planet.**

**You also need oxygen which comes from what we need for food. Of course we get oxygen from plants. Planets need a lot of plants in order to get a lot of oxygen. So if you ever live on a not so good planet, you'll need all of these things."**

Students at Level 3 are beginning to show a sense of audience and can adequately communicate their knowledge and ideas. They respond to questions with a topic sentence and go on to develop their ideas sufficiently. They use complex sentences with predictable structures. They have an awareness of paragraph formation, although lack complete command.

These students understand the need for support and provide details appropriate to their conclusions. In addition, their writing involves interpretation as well as exposition, signaling the beginnings of abstract thought. Some errors in surface features are found in students' work, but they do not interfere with the reader's ability to understand the text.

## Level 4

4%

Students at this level communicate clearly and effectively with their audience, expressing themselves with a sense of style and voice.

**"For people to live on a planet, the planet must have oxygen for people to breath. If we can not breath for to long, our heart will stop pumping blood.**

**A planet which people live on must also have sunlight. Sunlight helps the vegetables, which we need to eat. Sunlight also helps our bodies produce vitamins.**

**Finally, a planet must have water for living things to survive. We must have water because it has vitamins in it. Plants need water to make food, and we eat plants. Those are three elements that a planet must have for people to live on it."**

Students at Level 4 use an effective variety of sentence structure and length. They support their main idea with interesting and pertinent details and rich language. Their transitions, not only from sentence to sentence, but also from paragraph to paragraph, are smooth, sound and logical. By establishing and maintaining a purpose, these writers construct a logical progression of ideas that leads to sophisticated conclusions.

Some surface errors may be found, but they do not detract from the writer's ability to communicate.

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Students were asked to tell what they knew about a historical event and to comment on the modern perspective of that event.

## **Below Level 1**

**9%**

## **Level 1**

**27%**

Students at this level show some basic skills in communication.

**"Witches were treated unfairly back then because if they were guilty or innocent they would die anyway, today we think that witches weren't as bad as they thought. I wouldn't kill a person just because some person told me that someone was a witch."**

The responses of students at Level 1 are characterized by their brevity, often limited to a single run-on sentence. When these students give more complete answers, their sentences often do not follow a logical progression. Their language is simplistic, and their poor control of surface features (mechanics, grammar, spelling) often interferes with the reader's ability to understand the piece.

These students lack a sense of audience and experience difficulty in judging the requirements of the task. Their responses tend to be concrete and personal, incorporating accounts of how their lives relate to the question.

## **Level 2**

**42%**

Students at this level can communicate adequately but lack command of organization and sentence structure.

**"The U.S. Government took control of lands occupied by Native Americans and that was wrong. Native Americans were the first people to settle in the new world (that's what I believe) and that's very wrong to kick them off their property."**

**I'm sure the government didn't care about them all they wanted was there land."**

Students at Level 2 are able to communicate in a rudimentary fashion. They attempt to organize their responses in order to communicate with the reader and give fuller, more complete responses than students at Level 1. Using contextual evidence, these students are able to provide support for their arguments, but their responses lack cohesion and completeness. Surface and syntax errors also interfere with the reader's ability to understand their writing.

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## Level 3

18%

Students at this level can communicate effectively, using conventional organization and appropriate details.

**"In our history, many women have been tortured and killed for various unjust reasons. One of the most severe periods of this was the Salem witch trials. People seemed to believe that if anything went wrong it was a witch that had brought upon an evil curse. For instance, if a strange woman walked by while they were churning the butter and later on the butter was found to be sour they would blame the woman as 'witch' and she would be punished or often put to death. When a witch trial was held the woman being tried hardly had a chance to defend herself and she was almost always condemned.**

**Today our country has come to realize that many of the women were truly innocent. 'Witchcraft is now commonly considered a religion and many people cease to believe in any form of supernatural power. but I personally believe in witches! "**

Students at Level 3 communicate effectively, providing developed responses. Formal and objective language as well as conventional organization indicate an awareness of the intended audience. They prioritize their ideas, with the main point(s) supported by appropriate, relevant details. Their writing often benefits from a more comprehensive knowledge of the subject and a correct use of vocabulary. Errors in surface features are never great enough to interfere with communication.

## Level 4

4%

Students at this level communicate with clarity and effectiveness, expressing themselves with a sense of style and voice.

**"The U.S. government took control of lands occupied by Native Americans. Often in the course of U.S. history as the settlers were moving further and further west, many Native Americans were taken from their own lands and set to live on reservations. One of the most tragic of these movements of Native Americans was the 'Trail of Tears.' Many Native Americans were forced to walk hundreds of miles to new lands. Many died. Some died because the government gave them blankets with diseases such as small pox. Treaties were often made with Native Americans promising them that they could keep the land given to them, but more often than not, they were broken when valuable minerals were found in such places as Oklahoma and the Black Hills of South Dakota.**

**People today find those events appalling and unthinkable. But many years ago, it was a way of life and the U.S. citizens felt justified in their cause."**

Students at this level write with an awareness of the reader and, when appropriate, a distinct voice. Their responses are well organized, both conceptually and structurally. Different components of their response are clearly demarcated in paragraph form, with an overall coherence. They develop their topics subtly and with perception. They use effective language and a well-developed vocabulary, as well as including rich, interesting details that enhance their discussion and maintain their purpose.

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# GRADE 12

## Writing

(Students were given drawings of two plants: one was taller, with large leaves and short roots, the other was shorter with long roots and small leaves.)

The two plants shown above are the same species and about the same age. Describe the environment where each plant was found and how the plant adapted to its environment.

### Below Level 1

14%

### Level 1

24%

Students at this level show some basic skills in communication.

**"The plants were found in different places plant B was found a mile away from plant B. They adapted to its environment by the way the ground had vitamins and minerals and how much water each get. A plant to grow nice and healthy needs light and Air too."**

The responses of students at this level are generally so brief that they make development and support impossible. When Level 1 students write more than a few sentences, their lack of control over topic development, organization, and details renders written communication difficult. Often the responses of Level 1 students exhibit a disproportionate number of surface errors (mechanics, grammar, spelling, and usage) which interfere with the reader's ability to understand the piece.

### Level 2

34%

Students at this level can communicate adequately using simple structure and language, but lack command of writing techniques.

**"Plant A looks like it is in a good environment. It has plenty of sun and rain. The soil must be very rich since it does not have to go so deep in the ground. Plant B has to dig in more deeply into the soil to get mineral and water so it must be in a not so good environment probably it does not have enough sun and water to grow at it full potential. Therefore plant A will grow faster, healthier and better than Plant B."**

Students at Level 2 attempt to organize their responses to communicate but are not always successful. They show evidence of adhering to general fundamentals of writing such as logical topic development and organization, yet they lack the skills to implement what they know. Often, they are unable to stay on the main topic as evidenced by abrupt lapses in organization. Their sentences are repetitive and their language is simplistic. There may be an inordinate amount of surface errors.

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## Level 3

22%

Students at this level can communicate effectively, using conventional organization and appropriate detail.

**"Plant A was in an environment that received a good amount of precipitation. It's roots aren't very branched and are short because they could get enough water from a small amount of space. It also was sunny in this climate because the leaves are large and the stem is tall.**

**Plant B was in a climate that received less precipitation than Plant A. The roots had to cover a large area and were very branched in order to obtain enough water. The short stem and small leaves also show that water was not so plentiful that it could be put into other parts of the plant."**

Students at Level 3 communicate effectively. Their responses reflect a consideration of the audience; they elaborate and clarify their main points for the sake of the reader. The development and organization of their responses indicate understanding of the requirements of the task. They handle the textual details efficiently and appropriately. Their sentence structure is correct but predictable; their word choice is appropriate but unimaginative.

Level 3 students may have some errors in surface features, but those errors are never great enough to interfere with communication. They have control of the mechanics of writing.

## Level 4

6%

Students at this level communicate with clarity and effectiveness, expressing themselves with a sense of style and voice.

**"Plant A is found in a moist, crowded, tropical or temperate forest. Because there is plenty of rainfall, plant A has short roots and no problem obtaining water which it will use for life functions. The broad leaves help catch rainwater as it falls and its height has increased in order to compete for sunlight with the plants surrounding it. The plant needs light in order to produce its food through photosynthesis.**

**Plant B is a short plant with a vast network of roots. Plant B would typically grow in a spare arid land. The long roots indicate that Plant B needs to obtain moisture and nutrients trapped deep in the soil. Plant B has no competition for sunlight so it does not need to grow very tall. This stocky, compact shape helps it reduce evaporation of precious water. Also, the plant's compact shape and long root system indicate that it might be located in a very windy spot. The roots would anchor the plant to the soil and the small size would prevent the wind from catching it."**

The writing of students at this level indicates a sense of purpose that embraces the audience. At this level, the writer's voice emerges from the text through manipulation of structure, use of literary devices, and choice of language. Level 4 students develop their topics subtly and with perception. A variety of sentences, as well as rich vocabulary, characterize this level of writing. They manage the details of the text in such a manner as to elaborate on the answer and enhance the reader's enjoyment.









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